

New or Noteworthy Plant Collections from Myanmar (5): *Dendrobium koyamae*, a New Species in sect. *Formosa* (Orchidaceae)

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A new species, *Dendrobium koyamae* Nb. Tanaka, T. Yukawa & J. Murata (Orchidaceae; sect. *Formosa*), from Myanmar is described and illustrated. It is distinguishable from the closely related *D. scabrilingue* Lindl., by the larger flowers, obovate petals, rounded, orangish yellow with darker nerves (greenish with darker nerves in *D. scabrilingue*) lateral lobes of the labellum, and prominently crenulate margins of the midlobe of the labellum.

Key words: *Dendrobium*, *Dendrobium* sect. *Formosa*, Myanmar, new species, Orchidaceae

Field expeditions to the Natma Taung (Mt. Victoria) National Park, Chin State, central western Myanmar, were conducted by a team from the Makino Botanical Garden and the Botanical Gardens of the University of Tokyo in cooperation with the Forest Department, Union of Myanmar Ministry of Forestry. Natma Taung National Park is located in the so-called “Chin Hills”, and Mt. Victoria (21°12'N, 93°35'E) is the highest mountain (3053 m) in this range (Tanaka 2005).

During the expedition to the northern end the Natma Taung National Park in 2004, an undescribed species of *Dendrobium* Sw. (Orchidaceae) was discovered.

Dendrobium is distributed widely throughout tropical and warm temperate Asia to Polynesia, and about 1250 species have been recognized (Mabberley 2008). Myanmar, bordering on India, Thailand, Laos and China and extending down the Malay Peninsula, is one of the richest localities for *Dendrobium* and contains both Himala-

yan and Malesian orchids (Wood 2006).

Morphological studies revealed our discovery, which we name *Dendrobium koyamae*, to belong to section *Formosa* (Benth. & Hook.f.) Hook.f., in which about 50 species have been recognized. Species belonging to this section occur from the Himalaya in the west to the Philippines and Sulawesi in the east. Section *Formosa* is usually characterized by the evergreen stout stem, new sheaths with black or brown hairs, 3-lobed labellum, and prominent mentum. Phylogenetic analyses of macromolecular characters, however, have indicated that sect. *Formosa* does not represent a monophyletic group (Wongsawad *et al.* 2001, Yukawa 2001).

Dendrobium koyamae is morphologically very close to *D. scabrilingue*, but is easily distinguished by the following combination of characters: 1) larger flowers (ca. 4.5 cm vs. 2.5–3 cm in diam. in *D. scabrilingue*), 2) obovate, instead of oblanceolate, petals, 3) orange yellow lateral lobes of the labellum (greenish in *D. scabrilingue*), 4) apparently longer mentum than the

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short conical one in *D. scabrilingue*, 5) rounded to truncate apex of the lateral lobes of the labellum (acute in *D. scabrilingue*). The calli of the labellum in *D. koyamae* are weakly verrucose rather than prominently verrucose and papillate as in *D. scabrilingue*.

Seidenfaden (1985) placed *Dendrobium hedyosmum* Batem. and *D. galactanthum* Schltr. in synonymy under *D. scabrilingue*. The original protologues of these two taxa and their accompanying illustrations apparently match *D. scabrilingue*, and not *D. koyamae*.

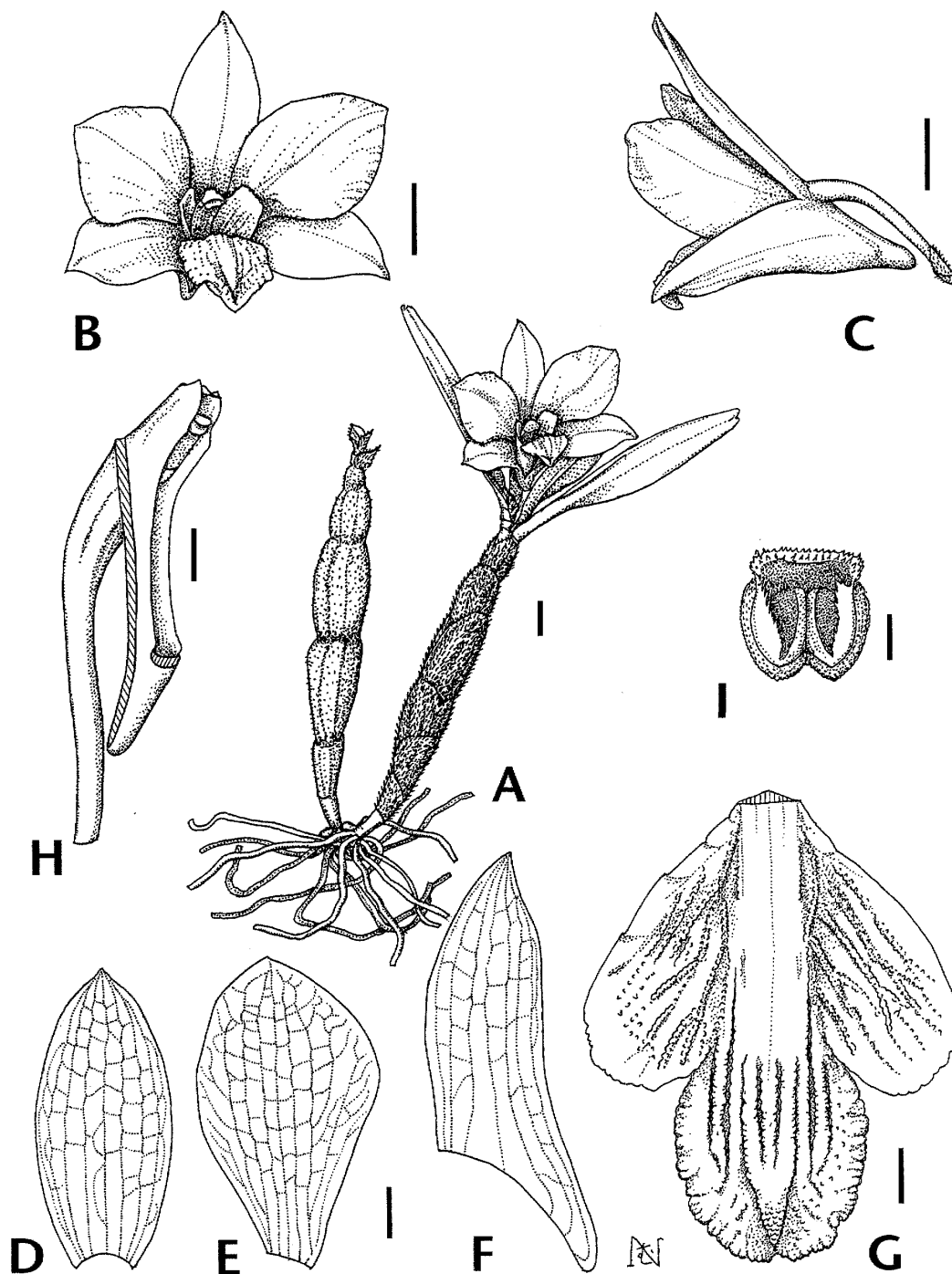


FIG. 1. *Dendrobium koyamae* Nb. Tanaka, T. Yukawa & J. Murata (A–I). A: Plant. B: Front view of flower. C: Side view of flower. D: Dorsal sepal. E: Petal. F: Lateral sepal. G: Labellum. H: Column, operculum and pollinarium removed. I: Below view of operculum. Drawn by M. Nakajima. Scale bar represents 1 cm for A–C, 5 mm for D–H and 1 mm for I.

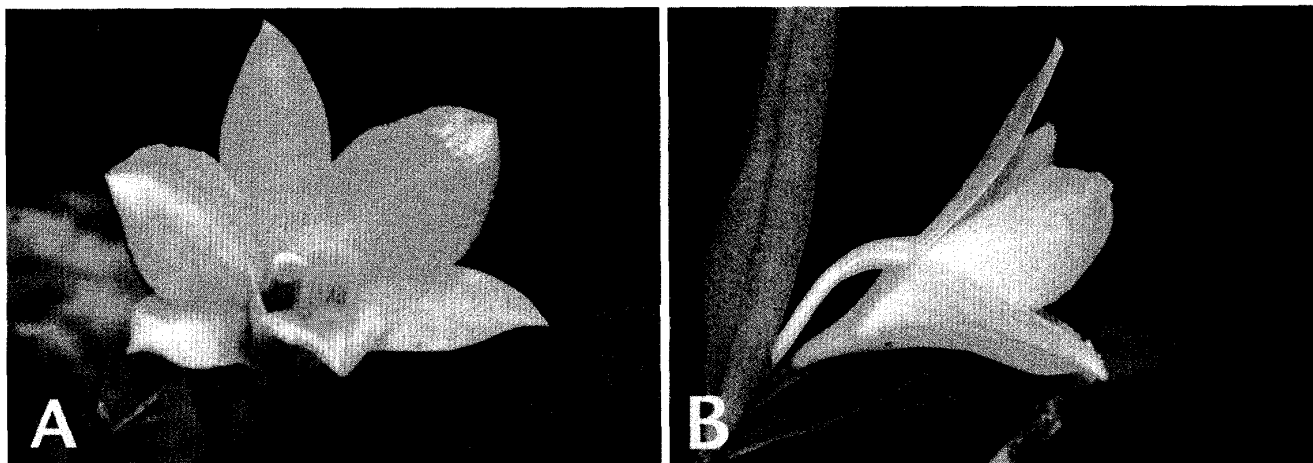


FIG. 2. Flowering individual of *Dendrobium koyamae* Nb. Tanaka, T. Yukawa & J. Murata. A: Closeup of flower. B: Side view of the flower. Photograph from holotype (Tanaka & al. 20040042).

Dendrobium koyamae Nb. Tanaka, T. Yukawa & J. Murata, **sp. nov.** (Figs. 1 & 2)

Affine *Dendrobium scabrilinguae* Lindl., sed floribus majoribus (ca. 4.5 cm vs. 2.5–3 cm diametro), petalis obovatis, latioribus, labelli lobis lateralibus aurantiacis, non viridescentibus, apice rotundatis truncatisve, lobo medio margine, prominente crenulato, callo labelli dissimili valde differt.

Typus. MYANMAR. Chin State, Natma Taung (Mt. Victoria) National Park, 1500–2000 m alt., north of Mindat Township, central western Myanmar, Nobuyuki Tanaka & al. 20040042 (holo- MBK, spirit collection).

Plant epiphytic. *Roots* elongate, fasciculate, compressed, glabrous, chlorophyll-bearing, greenish gray. *Stems* clustered, fusiform, 8–9 cm long, 1–2 cm in diam., glabrous in age, gradually widening towards apex, thickest at middle, unbranched, covered by persistent leaf sheaths, leaf sheaths with dense black hairs, nodes 5–7, internodes 2–3 cm long. *Leaves* oblong, 6–7 cm long, 1.2–1.5 cm wide, thickly leathery, abaxially densely blackish hairy, adaxially sparsely blackish hairy; apex often unequally bi-lobed; sheaths tightly clasping and covering stem, grayish white, to 3 cm long, with dense blackish hairs, hairs deciduous with age. *Inflorescences* axillary on apical part of stem; peduncle inconspicuous, entirely enclosed by bracts; floral bracts ovate, apex acute, with dense black hairs, 1.5 cm long, 0.5 cm wide. *Pedicel and ovary* greenish white, ca. 2.5 cm long. *Flowers* fleshy, widely opening, scented, ca. 4.5 cm in diam.; sepals and petals white; lateral

lobes of labellum pale yellow with bright orange veins, midlobe of labellum yellow with bright orange ridges; column greenish white; operculum greenish yellow; pollinia yellow. *Dorsal sepals* oblanceolate, 2.7 cm long, 1.2 cm wide, apex acute. *Lateral sepals* obliquely triangular-falcate, anterior margin 2.5–3 cm long, 1 cm wide at base, posterior margin ca. 4 cm long, apex acute to acuminate; mentum 1.5 cm long. *Petals* obovate, 2.5–3 cm long, 1.5–1.6 cm wide, apex acute. *Labellum* trilobed, recurved, adaxial surface with a broad, plate-like keel between lateral lobes; midlobe obovate, 1.5 cm long, 1.2 cm wide, slightly papillate on keels, adaxial surface with five verrucose keels, margin prominently crenulate, apex rounded; lateral lobes embracing column, subobovate, upper margin denticulate, apex rounded to truncate. *Column* ca. 7 mm long; operculum cucullate, conical, papillate below.

Distribution. Myanmar.

Note. Thus far known only from the type locality. Since further searching in other areas within the Natma Taung National Park failed to locate this species, it is likely rare.

Etymology. The specific epithet honors Prof. Tetsuo Koyama, director of the Kochi Prefectural Makino Botanical Garden, who initiated the Myanmar-Japanese cooperative program to inventory the plants of Myanmar, and gave us the opportunity to study the Myanmar flora, which lead to the discovery of this new species.

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References

- Mabberley, D. J. 2008. Mabberley's Plant Book: a portable dictionary of plants, their classification and uses (3rd ed.). Cambridge University Press, Cambridge.
- Tanaka, N. 2005. Plant Inventory Research: Contributions to the Flora of Myanmar. *Acta Phytotax. Geobot.* 56: 21–26.
- Wongsawad, P., T. Handa & T. Yukawa. 2001. Molecular phylogeny of *Dendrobium* section *Dendrobium*. In: Nagata, H. & S. Ichihashi (eds.), Proceedings, 7th Asia Pacific Orchid Conference, pp. 209–210. Secretariat of APOC7, Chiryu, Japan.
- Wood, H. P. 2006. The Dendrobiums. R. Schettler (ed.). A. R. G. Gantner Verlag K. G., Ruggell/Liechtenstein.
- Yukawa, T. 2001. Molecular phylogeny of *Dendrobium*. In: Nagata, H. & S. Ichihashi (eds.), Proceedings, 7th Asia Pacific Orchid Conference, pp. 69–71. Secretariat of APOC7, Chiryu, Japan.

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